RDECOM magazine

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Army Materiel Command sends wholesale logistics team to Iraq

By Tom Mossey
Army Materiel Command

Army Materiel Command sends wholesale logistics team .

On a request from Gen. George W. Casey, commanding general, Multi-national Forces Iraq, the U.S. Army Materiel Command sent an eight-person team to assist the Multi-national Security Transition Command-Iraq, in establishing an Iraqi government and armed forces logistics infrastructure. The team is comprised from experts from AMC Headquarters, the Research, Development and Engineering Command, the Tank-Automotive and Armaments Command and Milan Army Ammunition Depot. The skills they bring to the mission include: ammunition requirements determination, storage and handling of ammunition, Materiel Maintenance management, inventory management, Defense auditing, budget and finance and Logistics Management. The team islead by Col. Phillip Owens, chief of staff, TACOM.

One of the primary missions of the team is to bridge the gap, between strategic and operational logistics, by developing policy and procedures for the ministry of defense and joint headquarters, to implement responsibilities at all levels of the Iraqi government and armed forces. The third task is for them to help establish a self-reliance for the Iraqi government, so that when the coalition forces begin to transition management of the logistics infrastructure, the Iraqi Armed Forces will be able to effectively re-supply themselves and unilaterally continue the fight against insurgent forces.

“A successful sustainment strategy is crucial in enabling the Iraqi forces to become self sufficient and will be the culmination of all of our efforts,” said Owens. The third tenant may not have the visibility and marquee effect of equipping and training, but it is as important, and critical to our nation’s leadership, in making crucial decisions about the future of our involvement in the conflict and our ultimate withdrawal, he said.

The team is currently developing policy and procedures, in the areas of asset accountability and visibility, ammunition management, supply management and operational readiness floats. As these policies continue to be developed, refined and staffed throughout the Iraqi ministry, several team members are simultaneously developing stockage levels for all classes of supply. The end result will be recommended stockage levels for a multitude of items at all levels of the Iraqi ground, naval and air forces. This includes the number, or quantity, of items to stock, at all echelons of the Iraqi armed forces chain of logistics. The class IX repair parts are proving to be a significant challenge, given the multitude of vehicles and equipment in the Iraqi armed forces. The authorized stockage lists for each of the headquarters service companies are based on the approved modified table of organization and equipment. However, each MTOE line does not have a single type of vehicle, or piece of equipment, since the Iraqi forces already had similar vehicles and equipment that could be used to fill a portion of the requirement.

Stockage lists must be developed for each variant within the MTOE authorization. Doing so, increases the workload 10 fold and causes the team to research vehicles and equipment from around the world, since much of the Iraqi equipment was initially purchased from European or Russian sources.

The development and procurement of the range and depth of items AMC is generating will ensure that the Iraqi Armed Forces are “front loaded” with enough spare parts and other classes of supply to allow time for the Iraqi logistics infrastructure to mature.

The basis, or framework, for this maturity in the Logistics infrastructure is the policy and procedures that the MNSTC-I and AMC teams are developing. Sounds like a good plan, and with hard work, teaming with the MNSTC-I transition teams and cooperation of the Iraqi Government; it will provide both near and long-term transitional solutions.

Soldier Power Fuel Cell Development XX25 contract awarded

By Elizabeth Bostic
Communications-Electronics Research, Development, and Engineering Center Fuel Cell Technology Team

The Communications-Electronics Research, Development, and Engineering Center's Army Power Division has awarded a contract to Ultracell Corporation of Livermore, Calif., for continued development of the XX25, a 25W Reformed Methanol Fuel Cell for Soldier Power applications.

As part of the $1.11 million effort, Ultracell delivered two units in May and is scheduled to deliver three additional units by the Fall. These units are being developed under the CERDEC Mounted/Dismounted Soldier Power Army Technology Objective Program. The Ultracell XX25 units will be extensively evaluated against Military-Standard testing specifications at CERDEC facilities in Fort Belvoir, Va.

CERDEC plans to demonstrate these units as part of the On-The-Move Demo at Fort Dix, N.J. this summer, and in conjunction with the Sept. 2006 Land Warrior Doctrine, Organizations, Training, Leader Development, Materiel, Personnel, and Facilities testing at Fort Lewis, Wash. This will be the first field demonstration ever conducted with Soldiers actually wearing fuel cell hybrid power sources.

The Ultracell XX25 units weigh less than 1kg, are orientation independent, and provide more than 500 watt-hours per kilogram energy density for a 72-hour mission operating at 20 watts. These units are expected to be at technology readiness level six and aim to provide a lightweight, energy dense solution for Soldier power and help to reduce the overall weight a Soldier must carry for multi-day missions.

The U.S. Army Power Division's Fuel Cell Technology Team at Fort Belvoir, Va. is looking at fuel cells and other alternative power technologies to provide a power solution that supports the digitized battlefield and growing power demands.

Fuel cells offer high efficiency, low acoustic and thermal signatures, and low emissions. These incentives call for the Army to critically examine these technologies as a potential solution to the current power problem. Fuel cells are a targeted interest because they use liquid fuels with very high energy content, which reduce both the soldier load and the logistics burden associated with soldier power.

CERDEC's current efforts reach across the globe and through many areas of fuel cell technology. Several new fuel cell technologies are currently being evaluated as potential candidates to fill the power and energy gap within the military. These technologies are being scrutinized on performance and compared with the current military power solutions.

CERDEC serves as a test, evaluation, and program management center focused on developing and supporting the rapid transition of advanced integrated power technologies and systems from the labs in support of programs like Land Warrior and the future Ground Soldier System.

CERDEC breaks new ground with first chartered Product Manager

By Kashia M. Simmons
Communications—Electronics Research, Development and Engineering Center

The U.S. Army Research, Development and Engineering Command chartered its first Product Manager at the Communications-Electronics Research, Development and Engineering Center, June 30.

Lt. Col. William T. Utroska took the reigns as product manager, C4ISR On-the-Move (OTM), a program that will provide a year-round operational test venue for command, control, communications, computers, intelligence, surveillance and reconnaissance. Using meticulous test methodologies and analysis techniques PM C4ISR OTM will assess the capability of individual systems and mobile (on-the-move) system-of-systems and quantify the enhanced combat effectiveness gained from inserting new technology into the current force, Future Combat System spin outs and the future force.

This historic designation highlights the Army's emphasis on identifying solutions and mitigating risks early in the technology development phase in an effort to accelerate its transformation to Future Combat Systems, Utroska said.

"If we can identify risks early on and provide viable risk mitigation strategies, it'll pay dividends for the future force," he added.

PM C4ISR OTM is a new charter but the C4ISR OTM Special Projects Office has coordinated the annual C4ISR integrated experimentation as a defense technology objective since 2001.

Each year from May through August, the "Capstone" experiment brings together C4ISR systems, scientists and engineers, and experienced Soldiers from the New Jersey National Guard to conduct live, virtual and constructed scenarios to test the operational effectiveness of emergent C4ISR technology. Its unique location at Fort Dix, N.J. offers the added benefit of air and naval assets from its neighboring Naval Air Engineering Station Lakehurst and McGuire Air Force Base. A 'white cell' allows scientists and engineers to collect; measure and monitor activity and data real-time plus inject virtual stimuli into live maneuvers to simulate real-world scenarios.

"The feedback between developers of the technology and users of the technology can happen on the order of months instead of years," said Michael Amabile, a C4ISR OTM engineer.

"Your mission will be to continue with those important functions, and will grow quickly as we look to expand these capabilities, and support Team C4ISR all year long with critical experimentation and risk mitigation," said Col. John R. Bullington, CERDEC military deputy director, during the charter ceremony.

Test facility repaired for return to field

Research development center has lead role on reset team

By MERV BROKKE
Aviation and Missile Research Development and Engineering Center Public Affairs

(Courtesy photo) RESET RIBBON-- Maj. Gen. Jim Pillsbury, AMCOM commander, and Bernard Goodly, Engineering Support Division Chief, Engineering Directorate, cut the ribbon June 21 announcing completion of the first of 14 Apache Electronic Equipment Test Facilities to be reset at Redstone Arsenal.

Given the mission to extend the life and increase the mission readiness of the Army's Apache Electronic Equipment Test Facility, the Aviation and Missile Research Development and Engineering Center has completed Reset of the first of 14 Apache EETFs at Redstone Arsenal, Ala.

"This ceremony commemorates the first Apache EETF coming out of the Reset Program and it is being shipped to Fort Campbell, Ky., on 22 June 2006," said Bernard Goodly, engineering support division chief, Engineering Directorate, AMRDEC.

For more than 20 years, the Apache EETF has served the Army and its war fighters well as the only deployable automated test and repair facility for Apache. Having been subjected to harsh environments and multiple deployments around the world, the Apache EETF is a prime candidate for Reset.

"Recently, an AMCOM team comprising members from the Command Group, IMMC and ARDEC traveled to the theater to assess equipment issues and the status of test equipment used by aviation maintenance units. We discovered that our legacy Electronic Equipment Test Facility was old and using antiquated technology," said Maj. Gen. Jim Pillsbury, commander of the Aviation and Missile Command, in the April-June edition of Army AL&T Magazine.

Members of the Apache EETF Reset Team contributing to the completion of the first Apache EETF Reset on schedule and within cost are the Integrated Materiel Management Center, Apache Project Office, the Communications and Electronics Command, AMCOM G3 Reuse Office, Army G4, Defense Logistics Agency, Test Measurement and Diagnostic Equipment Agency, Ordnance Munitions and Electronic Maintenance School, the Mississippi National Guard, and the ARDEC's Engineering Directorate, Engineering Support Division, which serves as the Reset Team lead.

"The success of this program has been made possible due to the hard work and dedication of this integrated team," Goodly said.

The Apache EETF Reset Team's teamwork and efforts to develop and refine the Reset process, procure, repair and fabricate parts, and allocate the necessary funding has resulted in the successful establishment of the first Reset effort for the Apache EETF. The team has demonstrated the ability to restore the Apache EETF's deployability, improve its operational environment, extend its lifecycle, and return a fully mission capable system to the Warfighter.

"The Apache EETF encompasses test equipment and Test Program Sets that are used to diagnose and repair Line Replaceable Units for the Apache helicopter platform," Goodly said.

As Reset was being completed on the first Apache EETF, the team has begun work on three additional Apache EETFs. The ongoing process continues as the team works to provide the war fighter on the ground and in the air the best equipment and support possible.

Chute! Score!

PM Force Sustainment Systems (PM FSS) provides Low Cost Aerial Delivery Systems (LCADS) for humanitarian relief efforts
Natick Soldier Systems Release

The PM Force Sustainment Systems (PM FSS) Cargo Aerial Delivery Team has worked successfully to address a major problem associated with humanitarian relief aerial delivery operations: How to reduce the cost of equipment that needs to be left behind when recovery is difficult or impractical?

According to Nina Shopalovich, the Low Cost Aerial Delivery System (LCADS) lead, the need for a low cost alternative to existing aerial delivery systems began to come to light in 1993.

"During Operation Provide Promise, the U.S. military worked to keep food and medical supplies from multiple countries moving into Bosnia throughout nearly four years of war. More than $31 million of standard airdrop equipment was used and was never recovered and stocks were depleted," said Shopalovich.

Low cost containers await loading for aerial delivery. The containers, made of polypropylene, are capable of containing loads of up to 2,200 pounds and provide a low cost alternative to the A-22 Cargo Container. (Courtesy photo)

In 2002, the PM FSS Cargo Aerial Delivery Team was tasked with finding a solution that would assist the U.S. military by providing a one-time-use, resupply and humanitarian relief capability for use in both low velocity and high velocity airdrop. The program, entitled the Low Cost Aerial Delivery System, would result in dramatic cost savings to the military and subsequently the taxpayer as a result of the low cost of the system components.

This requirement was met by the LCADS Team with the development of three components, each providing a low cost alternative to the standard components currently used for container delivery. Each component in the LCADS represents a 55 to 80 percent cost reduction from the corresponding standard component.

The first component, the polypropylene container, is capable of containing loads of up to 2,200 pounds and provides a low cost alternative to the A-22 Cargo Container. This container used as its basis a design that had been developed over a number of years by engineers and technicians at the U.S. Army Soldier Systems Center in Natick, Mass. It has now been fielded and is being used in Iraq and Afghanistan.

The recently fielded, high velocity parachute provides an alternative to the 26-foot, ring-slot parachute used to airdrop cargo from altitudes of up to 25,000 feet above ground level.

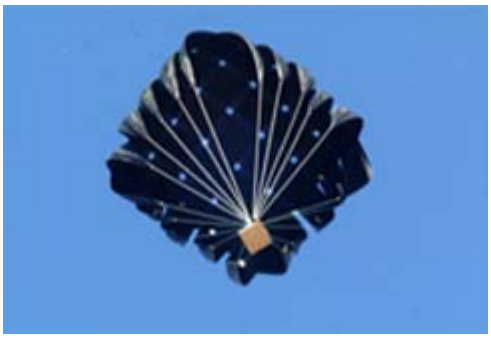
"The low cost containers have been dropped into isolated mountain villages in Afghanistan which during the winter were cut off by snow, with no way to get supplies or humanitarian aid in by trucks," said Shopalovich. The low cost containers are also being used to resupply troops in Iraq.

The recently fielded, high velocity parachute provides an alternative to the 26-foot ring-slot parachute used to airdrop cargo from altitudes of up to 25,000 feet above ground level. The low velocity parachute, suitable for airdrop at lower altitudes, provides the low cost alternative to the G-12 cargo parachute. The low velocity parachute is in its final phase of operational testing and will be ready for fielding in early 2007.

Both parachutes were designed by Bruce Bonaceto, an engineer in the PM FSS Cargo Aerial Delivery Team, and utilize a patented “spider” design with strips of polypropylene sewn in a distinctive cross-hatch pattern and suspension lines that are knotted to the parachute “legs”.

The older, standard high and low velocity parachutes are complex in design, whereas the new low cost parachutes are simple, use readily available polypropylene, and can be produced by a wide range of fabricators with a shorter lead time.

“In emergency situations, we used to turn to specialized parachute manufacturers, whose workload often caused production to bottleneck during a surge in demand. The simplicity of the high and low velocity parachute designs, as well as that of the containers, enables the LCADS components to be produced by many small, less specialized companies,” said Shopalovich.



The low velocity parachute, suitable for airdrop at lower altitudes, provides the low cost alternative to the G-12 cargo parachute. The low velocity parachute is in its final phase of operational testing and will be ready for fielding in early 2007.

The increased number of suitable manufacturers enables a much more rapid response to emergency situations.

The ability for companies to produce the components rapidly also keeps storage costs to a minimum. There is no need to keep large stocks on hand and the number of parachutes produced can be tailored to fit the need of a particular disaster or emergency situation

According to Shopalovich, “These low cost components actually exceed the performance of the more expensive standard container delivery components. The parachutes have a very forgiving design and it is easy to pack and rig them. They’re popular with the troops, and we’ve started to receive phone calls from the field asking where they can obtain them.”

Adelphi Lab conducts multi-jurisdiction antiterrorism exercise

By Kim Wilson
Research, Development and Engineering Command Public Communications Office

Responding Firefighter assists choking victim to safety.

While thousands of American Soldiers and Department of Defense personnel work diligently overseas to secure our nation's freedom, one U.S. installation did their part to ensure emergency preparedness on the home front.

The Adelphi Laboratory Center, Adelphi, Md., conducted its annual installation antiterrorism exercise June 8, assuring the center's readiness in the case of an actual emergency situation.

"The purpose of the exercise is to test and evaluate the installation's antiterrorism plan," said Chuck Banfi, Team Leader, RDECOM Antiterrorism Team. "ALC was also evaluated on how they interacted with local municipalities."

APG Observer/Controller explains the specifics of Hydrogen Bromide Exercise

Because the executed scenarios were designed to mock real-life situations, they were complex by nature. "Full scale exercises like this require a minimum of six to nine months to prepare and involve the entire community, including local emergency responders," said Roy Hurndon, Garrison Manager, Adelphi Laboratory Center. "We work closely with emergency responders, as well as installation personnel through our regularly conducted antiterrorism committee meetings to plan the exercise, develop evaluation criteria, and determine the resources required to evaluate the effectiveness of our incident response measures."

The ALC Garrison Installation Operations, Security, Operations Center, and the Crisis Management Team Offices were evaluated on their response times, communications and guard response.

Responding Firefighters talk strategy after arriving at exercise.

Jerry Weiss, RDECOM Mission Support Directorate, observed the ALC Emergency Operations Center during the exercise. "Testing and gaining valuable lessons enables an installation to learn their capabilities," he said. "You plan, execute, test and improve…it's all about readiness."

Knowing what to do when an emergency occurs is half the battle, being prepared to do what is needed is the other half, said Banfi. Lessons learned from such exercises enable installations to do just that.

“After the exercises we gather evaluation comments and develop the appropriate revisions to our plan,” said Hurndon. “Following these adjustments, we rehearse the new plans in small bites such as staff evaluation drills, command post exercises, or table top exercises to further hone the building blocks of force protection plans and begin the planning process for the next exercise.”

Emergency Personnel rush to ALC.

Firefighters triage victims after securing them in a safe location.

ALC Security Officer informing employees it is safe to return to the building.

CERDEC team earns Secretary of the Army Environmental Award

By Sandy Santiago (Symbolic Systems, Inc.), Team C4ISR KC
Beth E. Musselman, Army Materiel Command

The Communications-Electronics Research, Development, and Engineering Center's Carbon Dioxide Cooling Development Team, Fort Belvoir, Va., was presented with the 2005 Environmental Excellence in Weapons System Acquisition Award at a ceremony in Fort Belvoir, Va., recently.

CO2 Cooling Team member, John Modine, explains the CO2 cooling system to Mr. Prosch and Mr. Martin. (Courtesy photo)

The award was one of five Secretary of the Army Environmental Awards given Army wide for the practices in fiscal year 2005. The U.S. Army's Environmental Awards Program recognizes and rewards excellence in environmental stewardship.

The Principal Deputy Assistant Secretary of the Army for Installations and Environment, Geoffrey G. Prosch, presented the award to both CERDEC leadership and the CO2 Cooling Development Team members.

In conjunction with the award ceremony, the team provided a live demonstration of the CO2 cooling system on the M1114 Humvee test bed.

The CERDEC team, also consisting of members from Modine Manufacturing Company and the University of Illinois, undertook the project to address environmental concerns associated with the materials used for modern automotive cooling systems.

The team designed, installed, and tested the innovative cooling system on the M1114 Up-Armored Humvee, utilizing CO2 as the sole refrigerant in place of the currently used hydro fluorocarbon R134.

The CO2 Cooling Team: Back row L to R: Sam Collier (Modine); John Dolney (PM LTV); Steve Memory (Modine); John Manzione (CERDEC), Pega Hrnjak (Univ. of Illinois); Front row L to R: Nick Schultz (CERDEC), Neal Blackwell (CERDEC), Joe Potter CERDEC), Mike Connaghan (CERDEC).

CO2, a naturally occurring resource, is less harmful to the environment. As a working fluid, CO2 conserves greenhouse gas and avoids the need to use fluorocarbons, which pound-for-pound, are over 1000 times worse for global warming than CO2.

In addition to the environmental benefits of this prototype, the system yielded greater performance at lower space and weight requirements. Weight and space reduction for supporting equipment are extremely critical on armored vehicles because every pound and square inch enable the Warfighter to carry mission-critical equipment and components.

"Not only does [the new system] improve cooling capacity by 25 to 50 percent and reduce the vehicle cab temperature by another 10 to 20 degrees, its use of CO2 eliminates complex maintenance requirements," said Air Force Col. Bob Mattes, director, Comparative Testing Office Defense Acquisition Challenge Program. "It works better, cheaper, and is more maintainable using common materials. It doesn't get much better than this."

ARL welcomes eCYBERMISSION participants

By Paul Schmitt
Army Research Laboratory Public Affairs Office

For a group of students from Mark Twain Middle School in Alexandria, Va., participation in an annual science competition started with the encouragement of one of their teachers. Little did they know that their enterprising spirit would be rewarded with a class trip to tour the Army Research Laboratory's state-of-the-art facilities in Adelphi, Md.

The students of Mark Twain Middle School visited the Army Research Laboratory in Adelphi, Md. on Apr. 26.(courtesy photos)

The group of students participated in eCYBERMISSION, a web-based science, math and technology competition for teams of students in sixth through ninth grades. Students are asked to propose a solution to a problem in their own school or community. This year, more than 5,000 students participated from around the country and in DoD schools overseas.

The competition, sponsored by the Army, is the only fully internet-based science competition. The program grew out of an initiative by former Army Chief of Staff Eric Shinseki, who emphasized the need for a science competition that children from all diverse backgrounds could participate in.

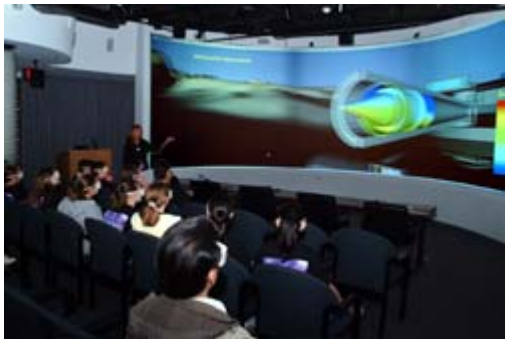
The Pacbot is demonstrated to an excited group of eCYBERMISSION participants on Apr. 26 during Mark Twain Middle School's visit to the Army Research Laboratory.

"The competition allows ordinary children to tap into abilities and skills that they may not yet have developed," said Kelly Stratchko, the outgoing Program Manager for eCYBERMISSION. "It also shows them aspects of the Army that they never knew existed and how they as civilians can contribute to the future of science and technology."

While all 90 of the students from Mark Twain Middle School submitted entries, one team of four recently took 1st place at the Northeast Regional competition. The project, submitted by a team of seventh graders Stefani Karp, Cory Spera, Emily Crowe, and Lauren Baetsen, focused on the idea of a "paperless" school. To test the feasibility of such an approach, the team carried notebook computers around their school for four weeks to see if they could properly replace the functions of pen and paper.

While these four students have received recognition for their project, the visit to ARL on Apr. 26 provided a unique reward for all 90 of the students. Pam Chamberlain, a Life Sciences teacher at Mark Twain, noted that the visit to ARL "left an impression on each and every one of them. It made their study of science really come to life."

ARL extended an invitation to visit its facilities in September, as Mark Twain Middle School had shown great support for eCYBERMISSION in the past, taking second place in last year's regional competition.



ARL'S collaboratorium was a hit with the Mark Twain Middle School students as they learned about the principles of 3-D visualization Apr. 26.

The students were welcomed by Steve Proctor and Len Huskey, who provided them with an overview of ARL and its contributions to the American Soldier. For the remainder of the morning, the students broke into groups to view five distinct demonstrations specifically organized for their visit.

Susan Neczyopruk, a contractor with Raytheon who provides visualization support and

3-D animation to the Major Shared Resource Center, organized the Vision Dome and Scientific Visualization presentations for the tour. She noted that she was "very impressed" with the level of engagement the students displayed.

The exhibits demonstrated how data collected by researchers and scientists could be mapped visually. Neczyporuk indicated that "the students really seemed to be into it. They asked questions about the presentation itself, as well as how certain elements like 3-D glasses and computers actually worked."

Other presentations included the Military Display, which allowed students to inspect and try on military gear, and the Warrior's Edge/Robotics Display, which featured a demonstration of the PacBot, an autonomous robot which has been used to help clear caves and buildings in Afghanistan.

Many of the students took special interest in the Mobile Discovery Center. For the demonstration, the National Science Center in Augusta, Ga. sent an 18-foot trailer used for teaching scientific principles to ARL. The Center is funded by the Army and the trailer appears at schools throughout the country to provide lessons in fundamental areas such as electricity and sound.

Chamberlain also shared some of the feedback the students provided in their class reports on the trip. "They were very specific and enthusiastic in the things they remembered from the tour," she said. "One student said he was most impressed at how much ARL was concerned about the safety of our soldiers, and what they are doing about it."

Mark Twain Middle School students visit the Mobile Discovery Center at the Army Research Laboratory, Adelphi, Md., Apr. 26.

Chamberlain herself wrote to Maj. Gen. Roger Nadeau, commanding general, U.S. Army Research, Development and Engineering Command. She emphasized to him that in the aftermath of the visit, "the students continue to make positive and insightful connections between their experiences at the ARL facility and lessons they are learning in school."

"It is magic when a student becomes excited about math and science to the degree my students did these past two years," she added.

"The parents who helped chaperone the trip were thrilled about the ARL tour," Chamberlain noted. "Many of them said it was the best field trip they had ever been on."

Michigan students win eCYBERMISSION community award

By Paul Mehney and Ashley John
Tank Automotive Research, Development and Engineering Center

Four eighth grade students from Malow Junior High School were presented with the Benefit to the Community award in this year's U.S. Army eCYBERMISSION competition. The team, Mustang 1, received the award for trying to remedy bullying problems in their school and community.

The team set up a telephone hotline in the school library, which gave students a confidential avenue to report threats or harassment incidents. Mustang 1 plans to advertise this hotline so that additional Michigan students can participate in reporting harassment problems. Each member of the team will receive $2,000 in savings bonds.

Nance Halle, eCYBERMISSION competition leader from the U.S. Army Tank Automotive Research, Development and Engineering Center, presented the students with certificates from the U.S. Army at an award ceremony on Thursday, May 25.

"eCYBERMISSION is a remarkable event that students can be creative in helping their community...when you open the door for creativity it is amazing to see what the kids can do. This program allows us [Mallow Junior High] to enhance the math, science, and technology in our community," commented Janice Settlemoir, Malow Junior High Assistant Principal. "The Army is giving students the opportunity to see their efforts become a reality. It is just an amazing program."

eCYBERMISSION is a web-based science, math, and technology competition that allows students in grades six through nine to compete for regional and national awards, while working to solve problems in their community. A total of 1,111 teams comprised of 4,035 students submitted projects to the Army for judging this year. The competition enables students to select a real-life problem in their community and illustrate how math and science technologies apply to everyday life.

Through eCYBERMISSION, the Army has awarded more than $2.5 million nationwide in U.S. savings bonds to students. In the past four years, over 25,000 students from across the country and in Department of Defense Education Activity schools have participated in the competition.

For a complete listing of 2005-2006 winners and registration dates, visit www.ecybermission.com.

CERDEC Chief Scientist Inducted into Hall of Fame

By Sandy Santiago
Communications-Electronics Research, Development, and Engineering Center Symbolic Systems, Inc., Team C4ISR KC

Chief Scientist, Dr. Arthur Ballato for the Communications-Electronics Research, Development, and Engineering Center was inducted into the New Jersey High Tech Hall of Fame, Thursday May 4, during the Seventh Annual New Jersey High-Tech Hall Of Fame Induction Dinner.

Dr. Arthur Ballato is the first Army civilian to receive this distinguished honor. He was one of eight inductees, selected from across the state of New Jersey, recognized that night.

“Dr. Ballato was nominated for researcher of the year as someone who has not only done significant research, but has supported research throughout his years at Fort Monmouth,” said Linda Klose, Executive Director, New Jersey-Pennsylvania Council AeA (formally known as the American Electronics Association).

“We have an executive committee comprised of industry leaders, who look across the four fields we have chosen [government; business; research; and academia], and we search for accomplished individuals who have made major contributions to their fields.” Klose added.

CERDEC Director, Gary Martin, was on hand during the night’s induction dinner, and spoke of Ballato’s wide-ranging contributions to the fundamental understanding, in both theory and practice, of piezoelectric materials and their use in resonators, filters, and other devices using frequency control and timing applications.

Dr. Arthur Ballato holds the NJ High Tech Hall of Fame obelisk presented to him during the ceremony.(courtesy of AeA)

Martin noted some of Ballato’s most significant contributions, which included developing frequency controlling resonators that are a part of high stability oscillators. The resonators control the heartbeat of Army and commercial communications, designing special quartz resonators that enable the use of high stability oscillators for today’s Global Positioning Systems. They measure fundamental material constants – which are used in the billions of quartz wristwatches designed today; developing stacked crystal filters and resonators responsible for the ultra-miniature timing circuits found in all of today’s mobile communication devices, and in laptop and desktop computers; and most recently, designing Micro Electromechanical Systems (MEMS) devices for used in advanced sensors and actuators for communications, diagnostics, and medical applications.

Fort Monmouth by Chance

In 1958, after receiving his Bachelor of Science degree in Electrical Engineering from the Massachusetts Institute of Technology, Cambridge, Ballato began his professional career at Fort Monmouth, working on frequency control.

New Jersey High-Tech Hall of Fame Inductees for 2006 - (left to right) Lakshmi Narayanan, Dr. Donald Sebastian, Dr. Arthur Ballato, Edward Ludwig, Caren Franzini, Dr. Martin Yarmush, Dr. Magid Abou-Gharbia, Dr. Sidney Pestka. (courtesy of AeA)

"As a youngster growing up on Long Island, I remember banner newspaper headlines, January 1946: radar contact with moon; little did I know then that I would someday co-author papers with W.S. McAfee, the man who largely made it possible," recalled Ballato.

Ballato's arrival at Fort Monmouth was almost by accident. His father, a tennis pro, worked at a private club in Monmouth Beach, and young Art would come down to the Jersey Shore to help his dad during the summers.

"Well if the Jersey Shore was represented in my mind as 'vacationland,' then what better could I do but prolong the association," Ballato said. Perhaps equally enticing was the close proximity of his then girlfriend (now wife) who lived in nearby Long Branch.

Ballato joined the Fort Monmouth workforce and soon made a name for himself. Computers were just being introduced to the workplace and Ballato's mentors had given him a series of calculations to perform as a way of keeping him "gainfully employed."

"With the help of a mathematician, I programmed the computer to do the calculations and set it to run overnight. In the morning, there was a print out with all the calculations. I brought it to my boss and his eyeballs popped out. He couldn't believe it. I believe he put me in for an incentive award," Ballato remembered.

In realizing Ballato's potential, his mentor, Dr. Ed Gerber, soon assigned him to work for Dr. Rudolf Bechmann, who initially had used Sommerfeld's methods to calculate antenna radiation resistance, but was eventually won over to what he calls, "the wonderful world of quartz, and frequency control," becoming one of the discoverers of the AT-BT family of cuts.

This fascination with quartz crystal frequency control was readily transferred to Ballato, who is proud to be a "technical grandson" of the world renowned Professor Sommerfeld. The complete frequency control facilities at Fort Monmouth furnished Ballato with ample opportunity to learn about quartz and frequency control technology – knowledge which he in turn employed to make an 8-inch Cassegrainian reflecting telescope.

"Working with and assisting Bechmann kindled my interest in piezoelectricity and other areas of material science, as well as quartz resonators, and frequency control in general; this work produced many papers, talks, and patents, and ultimately led to incorporation of these ideas into equipments for the Warfighter. My interest in network theory stemmed from the courses of Professor Guillemin at MIT. The combination of networks and mechanically resonating quartz led to many additional papers on equivalent circuits to represent these and associated devices, such as MEMS and sensors," recalled Ballato.

In 1990, Ballato became an Army ST (Scientific or Professional position), and was appointed Principle Scientist – first of the Electronics Technology and Devices Laboratory, then of the Electronics and Power Sources Directorate of the Army Research Laboratory. Ballato also served as a member of the original Army Research Laboratory Fellows.

Upon his transfer from ARL approximately a decade ago, Ballato was appointed Chief Scientist of CERDEC. In this capacity, he serves as the center's principal scientific advisor, providing technical interfaces with academia, industry, and federal and state governmental elements.

'[Work here] … Saves Lives'

Although his arrival at Fort Monmouth was by chance, Ballato is grateful for the opportunity to work at a location that he considers not only "helpful for the country," but a place that "saves lives, benefiting the country at a high level."

"[Soldiers] put their lives on the line. In [working at Fort Monmouth], I've been able to take part – vicariously in their mission. What I can't do physically, I can do mentally," Ballato said.

When asked to reflect on his career, Ballato recalled, "I was once told to bloom where you are planted. It has been 40 some odd years – gone like . It has been a very interesting career and you just keep building."

A table set at the induction dinner in honor of the Warfighter, who is at the heart of CERDEC work.(courtesy of AeA)

Ballato, admittedly not one to sit and reflect on his many accomplishments, is quick to transition the conversation forward, as he marvels at today's new technology.

"There is much in modern technology to ponder thoughtfully," he said. "I am still struck by the fact that frequency, the most ephemeral of quantities, can be, by far, the most accurate entity we know. It brings to mind GK Chesterton's quote: 'The world will never starve for want of wonders, but for want of wonder'."

Ballato relishes the new ideas of the younger workforce. "I've had a number of employees that have been students of mine. I've got to keep reading books to keep ahead of the youngsters. It's hard to keep ahead, but very invigorating," he said.

"I build upon my background to accomplish things in a faster way. I can use all the tricks I used in the past, to assess the quality of new material. These new ideas are always needed, and they must be combined with what you've learned over the years, because one without the other doesn't work," he said.

All About Him

For the unassuming Ballato, the event was all about him, his fellow inductees, and the contributions they made to their fields. Not a stranger to the spotlight, but more comfortable behind the scenes facilitating research, advising, and mentoring, Ballato took the stage before an audience of peers and distinguished guests.

After thanking his wife for her unstinting support over the years, Ballato characteristically turned the spotlight away from himself, and onto Fort Monmouth and its mission to serve the Warfighter.

"The honor accorded here is symbolic of the accomplishments of the entire Fort Monmouth CERDEC technical staff, and particularly, of the continuing sacrifices of all our service members who place duty ahead of self," Ballato said.

(left to right) Sgt. Amador Pena, Sgt. Steve Stricklin, Sgt. Bernard Sims and SSgt. Marquis Walke present the colors at the 2005 NJ High Tech Hall of Fame Induction Dinner to honor Dr. Ballato and the work CERDEC does to support the Warfighter. (courtesy of AeA)

He then motioned to a table set up in honor of the Warfighter, complete with Army sword, beret, gloves, and boots, and stated, "this simple place setting serves as a reminder of the continuing sacrifices of all our service members. And so on their behalf, please accept my sincere and cordial thanks and best wishes to the New Jersey High-Tech Hall of Fame Committee, to the sponsors, and to you all."

Ballato, whose successful and enduring career at Fort Monmouth began by chance, has received recognition outside of Fort Monmouth on numerous occasions. He is a member of advisory committees for various universities, and is an Adjunct Professor at Rutgers University. He has authored over 350 technical articles and book chapters; holds more

than 50 patents; and has edited several books. He holds a Level III certification in the Army Acquisition Corps, and on four occasions, has been awarded the highest Army Research and Development Award for Technical Achievement. As of Thursday, May 4, he can now add New Jersey High-Tech Hall of Fame Inductee to an already vast list of accomplishments, which will undoubtedly continue to grow in years to come.

Inductees into the New Jersey High Tech Hall of Fame are selected by board members from the New Jersey-Pennsylvania Council of AeA -- the Biotechnology Council of New Jersey, Inc; and the HealthCare Institute of New Jersey.

TARDEC associate receives second NAACP award
Roy Wilkins Renown Service Award again given to RDECOM civilian

By Ashley John
Tank Automotive Research, Development and Engineering Center

A Research, Development and Engineering Command employee will receive the 2006 National Association for the Advancement of Colored People (NAACP) Roy Wilkins Renown Service Award.

Gregory Chappelle, who works for RDECOM's Tank Automotive Research, Development and Engineering Center, Warren, Mich., will accept the award for his educational outreach efforts with low-income middle school students from southeastern Michigan, and for his years of dedication to the U.S. Army's eCYBERMISSON program.

The NAACP Roy Wilkins Renown Service Award is granted annually to American military or civilian personnel who have distinguished themselves by contributing to military equal opportunity programs. Chappelle will receive his honors July 18 at the 97th NAACP Annual Convention in Washington, D.C.

This is Chappelle's second Roy Wilkins Award; received his first NAACP award in 2003 for his educational outreach efforts with middle school students, and for 10 years of service with the nation's Historically Black Colleges and Universities/Minority Institutions (HBCU/MI).

Gregory Chappelle

In 2005, Chappelle coached eighth grade students from Durfee Middle School, Detroit, Mich., to first place in the Northwest Regional eCYBERMISSION competition. The team also completed in the eCYBERMISSION National Finals in Washington, D.C., where they won a total of $26,000 for their project: The reduction of pedestrian fatalities in the United States and Canada.

"The environment that these students grow-up in is very tough," stated Chappelle.

"It is extremely motivating to see them [students] grow when they are placed into an environment which allows them to be creative. It is rewarding to see that I have impacted their lives in a positive way, inspiring them to achieve their goals."

"The environment "inner city" middle school students grow up in is very tough. I have found that these middle school students excel in learning complex math, science, engineering and dentistry when exposed to these academic areas on universities campuses in the U.S. and CANADA," Chappelle said.

Last year Chappelle received citations from the State of Michigan and the City of Detroit for being an ousting role model and educator for inner-city

From left, Chappelle's last year's regional eCYBERMISSION contest winners Darion Hill-Austin, DeAundre Graves, advisor Greg Chappelle, Demontae Moore and Koreko Williams (RDECOM Photo)

and low-income students in Detroit and southeastern Michigan. Since 2003, Chappelle's eCYBERMISSION students have won more than $60,000 in U.S. Savings Bonds.

In February 2005, Chappelle received his second U.S. Black Engineer of the Year Award for teaching sixth through ninth grade Detroit students' mathematics, chemistry, dentistry, physics, material and electrical engineering, and handwriting.

Chappelle was the first black teacher to lead an all black team to the National eCYBERMISSION "Final Four," championship.

Chappelle currently serves as TARDEC's HBCU/MI Liaison Officer, and is still involved with numerous outreach efforts. Over the past 16 years, Chappelle has made astounding contributions to the U.S. Army's HBCU/MI, Recruitment of Minorities and the eCybermission outreach programs. In 2003, Chappelle founded the Science and Math Teacher-Student Exchange Program between the U.S. and Canada. He holds degrees in chemistry, physics and electrical engineering, and holds teaching certificates for secondary education in chemistry, physics and mathematics.

From the jungle to the desert – Former Marine takes a tour to armor Soldier vehicles in Afghanistan

By Ashley John
Tank Automotive Research, Development and Engineering Cente

(Pete Burns, Tank Automotive Research, Development and Engineering Center senior mechanical engineer, recently took time out of his busy schedule to discuss his experiences from his 155-day deployment to Afghanistan. For many moons Burns and his fellow team members have been making M939-series armor kits to meet the needs of Soldiers in theater. The members on TARDEC's Physical Prototyping Team have worked hard to fabricate armor kits and parts, put them into creates and boxes, and ship them into the field. Being in theater, Burns gained a different perspective – he went from the creator to the recipient of armor kits.)

Army Materiel Commander, Gen. Benjamin S. Griffin receives a brief from Burns in Southwest Asia. (Courtesy Photo)

Q. How was the experience of receiving armor in Afghanistan different than creating and shipping the armor from TARDEC's Physical Prototyping Laboratory?

A. Being overseas made me realize what a great job I have right here at TARDEC. It is really easy to get complaisant about your job; when you get to Afghanistan it is such an eye opener to see what we do here affecting the Soldier in person. It is great to see our work being used in the field; it makes you realize what how important your everyday role is to the Soldier.

This was a deeply effective, positive experience for me to see what I do on a daily basis, is saving the lives of young kids [Soldiers] while fighting for our nation. What we have done for them [Soldiers] is a lot larger than you can even imagine – seeing their faces when the armor arrives lets you know that you have completed your mission to the Warfighter.

Q. What responses did you receive first hand from Soldiers receiving armor kits that were developed at TARDEC, and various arsenals and depots?

A. The Soldiers were elated to see the M-939 armor kits. They loved the M-939 armor because it gave them more room inside the vehicle. The air conditioning units were a huge plus for the Soldier, being that is it now mandatory for vehicles to have armor before they cross the base line, it can get very hot inside the armored vehicles.

Before the armor kits arrived in theater, a lot of the vehicles were outfitted with armor that Soldiers put on themselves – mild steel and hillbilly armor – they used whatever they could find. This type of armor would provide some protection from a ballistics standpoint, but would offer the Soldier no protection from IEDs. The armor kits that we are providing to the Soldier are increasingly lethal, saving Soldiers when faced with IEDs.

Q. How do Soldiers in the field view what TARDEC is doing?

A. Bottom line – the Soldiers have been very positive towards receiving the armor. There are a lot of guys [Soldiers] whose lives have been saved because of the armor. They have to like the kits, they are saving their lives!

The response was extremely positive. You can't save everyone's life with armor, but the fact is we are saving tons more lives with the armor.

Q. How do the Soldiers like the armor they are receiving? Did TARDEC's designs and installation instruction help make the Soldiers lives easier?

A. For the most part yes, in the HMMWVs there is less room in the vehicle with the AoA. The Soldiers kept asking if there is something that we [Army] can do to change the seats to give the Soldier more room when they are heading into combat. With all of their gear, supplies, and armor, it doesn't leave them [Soldiers] with much room left over.

Right now there are approximately six to eight Army depots involved in building the armor kits. The depots are working non-stop and will overcome any obstacle to fix the kits for the Soldiers. But, it is easier to install the kits in theater with the aid of people, like myself, who are familiar with the inside guts of the armor kits. I got the chance to get the Soldiers started on installing the kits, up to the point where they were ready to install them on their own. The engineers behind the designs have and can offer very helpful hints to installing the kits. We can also solve both little and big issues to make the kits fit perfectly onto each vehicle – something that we cannot do if we are not in theater with the Soldiers.

It's really simple - armor makes life easier for the Soldier; they feel safer going into battle with armor.

Q. Being a former Marine and having experiences with combat, what did you take away from this experience?

A. This experience totally changed my attitude about life and everything – I had gotten real complaisant about my job. After this experience I came to the realization that people at TARDEC should be proud to be an associate. I am proud to be associated with these guys that work here [physical prototyping team]; what they [engineers] are able to do for the Soldier is amazing – they should all be proud of what they have done.

You don't realize what you have here, until you get a chance to walk around down there. When you get back you realize how lucky you are to have a roof over your head, a job, and all of the things that you have. It is just phenomenal to be here [U.S].

Q: Was the trip back into combat worth it? How is the Army of Operation Iraqi Freedom different from the Army of Vietnam?

A. Yes, absolutely! I am glad that I had the chance to go over there and work face-to-face with Soldiers. The last month of my tour was the most worthwhile because I had daily interactions with the Soldiers. Maj. Warren, who accompanied me in theater, took me to FABs to see the vehicle being used. I got a chance to talk to the Soldiers to see what their reactions were. I had gotten to see what has changed on these vehicles since the first days of building the kits in the shop.

The thing is – today's Army is a "Volunteer Army." Most of these Soldiers, if not all of them, are on their second tour, some are even on their 3rd, 4th or 5th tours. These Soldiers are going to end up doing more combat time than a WW II Veteran. Not once did I her them complain; this is a phenomenally different mindset than when the draft was in effect during Vietnam. Those Soldiers were fighting against their will, not because they wanted to. These Soldiers in OIF want to be there; there in no whining or crying with this Army.

Pete Burns is a senior mechanical engineer, working on TARDEC's Physical Prototyping Team. Burns is a certified welding inspector and fabricator of anything imaginable. Burns is a former Marine, and a former member of the Texas Army National Guard, 36th Army Airborne. Burns served in Vietnam, and has over 24 years of military experience. Since returning from theater, Burns has been working at TARDEC on FMTV Cab Mounts.

An Interview with Vickie Covey, TARDEC Budget Analyst

By Ashley John
Tank Automotive Research, Development and Engineering Center

(Vickie Covey, Tank Automotive Research, Development and Engineering Center, budget analyst, recently took time to discuss her experiences from her 120 deployment in Kuwait. Covey gave insight as to what it was like to perform many different tasks, all while giving a 'women's perspective' to life in a combat zone.)

Vickie Covey (Courtesy Photo)

Q: What was your main task while in Kuwait? Did is vary significantly from your day to day operations at TARDEC?

A: I really became a 'jack-of-all-trades', working with the AMC and Kuwaiti government, was one of my main functional areas. I ordered supplies, performed inventory checks, and worked with local contractors to get vehicles and standard supplies on and off base. I had to perform background checks as part of the security process for vendors [contractors] who needed to get on the base. These checks were done for anyone and anything - even something as small as dropping off paper clips. Security issues were high and of utmost priority.

I organized hand receipts for all vehicles coming in for repair and reset operations, and for all equipment that is turned in after each unit deploys. I turned the hand receipts into an organized process; it was a mess when I had gotten there. To make it easier, I created a database to show the location and anticipated location of each vehicle.

The Soldiers really made a difference in my daily activities, and everyone is focused on the bottom line. You do anything that you can for the Soldier and the team, no matter if it is in or out of you scope of work. I am a budget analyst, and I performed a lot of other tasks outside of my niche.

Soldiers are so glad that we are there; they really make you feel like you are on a pedestal. They absolutely love the results that we [civilians] give to them

Q: Did your job functions require you to travel off base? How did that impact you?

A: I only went off base to pick up vehicles or to visit contractors. As a civilian, you have to have a shooter with you because you can't have weapons, especially in my case, because I was only in Kuwait for four months.

After being in Kuwait you realize that the country is relatively safe. I was surprised to see how westernized Kuwait was.

There was one day that I was driving back from Doha alone, and it is only natural to become a little paranoid. All of a sudden there was the 'bang' and my heart fell into my chest. I looked up… and, it was just a rock hitting the windshield. It just goes to show you that you should always be alert and aware of your surroundings.

Q: It is tough to be apart from loved ones for an extended period of time. How did the Soldiers and other civilians make you feel like you were at home?

A: The Soldiers really go out of their way to make you [civilians] feel at home. They are away from their families, too, so they really try to make you feel like you are part of the Army family. They know what everyone is going through… the Soldiers were just great.

Your family gets panicked if you don't call, and it takes three days to get to Kuwait. My husband was a nervous wreck because I hadn't talked to him yet. The best thing that TACOM and TARDEC are doing for us is giving each person a morale call everyday. You get to dial into the TACOM Operations Center, and they let you call one family member everyday for 20 minutes. That was a blessing!

Q: If offered the opportunity, would you do it again?

A: Yes, definitely. If I could, I would go back – especially if I could take my husband and daughter. This was a once and a lifetime experience, and I wouldn't change it for the world. I loved it, just loved it! It really takes a whole family commitment to be away from your family, but I loved it.

Changes throughout the desert

TARDEC Communications

TARDEC Bill Smuda leads a training session in Iraq. (Courtesy Photo)

In August, TARDEC engineers Bill Smuda and Joe Alexander returned to theater in support of the Omni-Directional Inspection System .

The following are excerpts from Smuda's journal during his second tour in Iraq and Afghanistan.

Balad Air Force Base, Iraq
Day 4, August 12, 2005

We woke up this morning at Camp Anaconda at "O'Dark Thirty", not realizing what a long day was ahead of us. We spent the morning meeting with people and checking out the operation. When we got to the end of the checkpoint, there was a group of kids playing and swimming in the irrigation canal. They all came over to say, "hi" and shake our hands. When the group got too thick, the U.S. guards had the Iraqi guards shag them off.

After walking the access lane, we went to find the robots. The first two fired up immediately, the third had issues. Some of the internal screws had come loose in transit and it would not start. We took the robot in and fixed the problem.

Later that day while demonstrating the robot, a lieutenant ran it into a speed bump, and it stopped working. The enlisted guys got a big kick out of that, the lieutenant broking the robot. They told us to make sure we reported that the robot is not lieutenant proof.

Day 5, August 13, 2005

30,000 steps. I brought my pedometer, and that is how many steps I have taken in the last two days. That's not bad considering we are traveling with a major in a Ford Explorer most of the time!

Today we were asked if we could do a demo for the commanding general. We set up in the parking lot. One robot was stationary on a 2x2x2 concrete block and looking down at the other robot. The stationary robots receiver was tapped into a commo shack and the video was piped in to the conference room. When it was time, Joe drove the ODIS around a bit, and then headed under a car. When he went under the car, I switched the receiver to the channel of the robot under the car. Finally when he emerged, I switched the video back to the over watch robot. The demo went very well and the general was pleased… always a good thing.

Day 6, August 14, 2005

This morning we trained the soldiers who will be using ODIS. Most of them were receptive and some were even very excited about it. We had a one hour "death by power point" session, and after that there was a hands-on session in the parking lot, which is always great fun. After the training session, we packed the robots and turned them over to the unit.

Baghdad, Iraq
Day 9, August 17, 2005

Its day nine and we are feeling fine. We trained the technicians here how to repair the ODIS robot today. Training took up the morning and part of the afternoon. The soldiers from Camp Slayer brought their two robots in for repairs. One had a loose encoder shaft; the other had a failed wheel node. The techs were able to fix both robots with gentle prodding from us. A third robot has a failed video receiver, it will be repaired as soon as we can send the part from the states.

Kandahar AAF, Afghanistan
Day 13, August 21, 2005

The weather today is relatively pleasant, it's somewhere in the 100's. Over night lows are expected to be somewhere in the 70's or low 80's.

We found two ODIS robots on base, stored in a conex. One is new, the other almost new. We hauled them out and one of our contacts brought a force protection office over to see them. We are charging up the batteries, and training the guards tomorrow morning. They will be put to work right after the training. Two other robots have been located at Bagram, AAF. I guess that will be our next stop.

Day 15, August 24, 2005

This has been a productive trip for us. We found several ODIS robots in need of repair and repaired them, we trained the technicians, and we found unused ODIS robots and returned them to service.

But more importantly, we once again met dozens of dedicated young men and women, some not so young. All of them take hardships we experienced briefly, and put them aside to do their jobs. They do their jobs well under such extreme conditions. Many told me they originally signed up to get money for college and they can't wait to use it.

These Soldiers may be complete strangers, your friends and neighbors, your friends and neighbor's kids or husbands and wives. One of the greatest joys they have is receiving mail and treats from home. Especially treats from strangers and school children (there are letters from school kids posted almost everywhere). Take the time to write if you can and organize care package drives. Let's make life a little bit easier on them while they are over here fighting for America.

Mission Complete. This is Bill Smuda, signing off.

Bill Smuda is a long time employee of the U.S. Government, Bill brings a multifaceted resume to life in his current assignment in the TARDEC Robotics Mobility Lab. Following his graduation from High School, Bill enlisted in the U.S. Air Force where he gained valuable experience in Heavy Equipment Maintenance. In 1972, after four years, including one tour of Vietnam, Bill was discharged at the rank of Staff Sergeant. Bill earned his Bachelors of Science in Engineering from the University of Illinois in 1977 and he earned his Masters in Computer Science and Engineering at Oakland University in 1988. While working at TACOM, Bill gained experience in Artificial Intelligence techniques as well as computer simulation, programming and high speed networking. Bill is currently a Research Engineer in the U.S. Army TARDEC Robotics Mobility Lab. Bill is also a PhD candidate in the Software Engineering Program at the Naval Post Graduate School.

Joseph Alexander is an Electrical Engineer and recent Kettering University graduate. Joe has been supporting TARDEC's Robotics Mobility Laboratory, particularly the ODIS system for over five years. Joe began his career at TARDEC through an internship program, and is currently a full-time employee, supporting multiple in-house and overseas programs.

Reborn in Green on Army's Birthday

By Kashia Simmons
Communications-Electronics Research, Development and Engineering Center

As the calendar marked the Army's 231st birthday, June 14, Staff Sgt. Michael Tumminelli concluded his short stint as an Army veteran by raising his right hand in a pledge to "defend the Constitution of the United States and the state of New Jersey against all enemies, foreign and domestic," during his National Guard enlistment ceremony.

Col. John R. Bullington, CERDEC Military Deputy, administers the N.J. National Guard oath of enlistment to Michael R. Tumminelli on the Army's 231st birthday, June 14, 2006.--Photo by: Michael S. Burke

Tumminelli, a former Army paratrooper, separated in June 2005 to complete his bachelor's degree in political science at Richard Stockton College. Six months after separating and nearing graduation, he followed up on a contact he'd received at a career fair, and in January landed a job as an outreach specialist with the Communications-Electronics Research, Development and Engineering Center, Fort Monmouth, N.J.

At the fair, he met Darla Flanagan, a CERDEC events planning coordinator and Army National Guard Staff Sergeant attached to the 254th Infantry Company in Sea Girt, N.J.

Tumminelli is commonly referred to as a Soldier-to-the-core by his 'civilian' colleagues for his occasional rants about military structure and responsibility. Flanagan recommended he enlist with the Guard and arranged a meeting with a local recruiter.

"They needed someone and it was an opportunity to teach the younger Soldiers," he said.

Tumminelli is set to take a job as an infantry instructor for the 254th.

The short ceremony in front of the flag pole of Fort Monmouth's Myer Center brought together a small group of his colleagues, as well as the CERDEC Director, Gary Martin; Deputy Director, Henry Muller; and Military Deputy, Col. John Bullington, who administered the oath of enlistment.

"I have a tremendous amount of respect for those who volunteer to serve, and particularly our National Guard Soldiers. It's almost as if they have to live in two worlds. They have their civilian life and have to make room for their contribution to the active duty force," Martin said, himself a former Army Signal Corps Officer.

Tumminelli now takes his leadership and soldiering skills into those two worlds – training New Jersey's young infantry Soldiers and, in his civilian life, familiarizing CERDEC's science and engineering workforce with the Soldier's way of life.

His new Guard position fits in well with Tumminelli's CERDEC responsibilities facilitating the Integrated Community Outreach Network's Greening Course, Soldier- Engineer Interface Initiative and science and technology summer camps. Who would have imagined that the experiences of an Army paratrooper in Afghanistan and Egypt would have paved the path for him to facilitate summer camps for kindergarten through eighth graders?

"Tumminelli's experiences as a paratrooper were a significant influence in hiring him. He was just what we were looking for to help bring the Soldier's perspective to our workforce," said Dwayne Davis, Tumminelli's supervisor and ICON director.

Now reborn on the Army's birthday, this day will hold a special significance for Michael Tumminelli, who is set to serve our Army in a suit and in greens for some time to come.

Army partners with EPA to unveil the hydraulic Hybrid UPS demonstration vehicle

Tank Automotive Research, Development and Engineering Center press release

The U.S. Army, U.S. Environmental Protection Agency, United Parcel Service and industry partners unveiled the world's first series hydraulic hybrid urban delivery vehicle – the Hydraulic Hybrid UPS demonstration vehicle, June 21. The UPS vehicle is targeted to achieve 60 to 70 percent better fuel economy.

The U.S. Army Tank Automotive Research, Development and Engineering Center's (TARDEC) National Automotive Center (NAC) cost-shared the development of the UPS hybrid hydraulic technology. The Army hopes to retrieve important data on how hydraulic hybrid technology performs for potential application onto future military platforms.

"This effort will provide the Army with hydraulic hybrid performance and durability data, as well as mature drive components and control algorithms for potential application onto future military vehicles," said Mr. Paul Skalny, Director of TARDEC's National Automotive Center. "This valuable partnership with the EPA and industry will allow us to collect the appropriate data needed to further Army evaluations of hybrid hydraulic technology."

The vehicle's hydraulic hybrid energy storage system captures and stores a large fraction of the energy that is normally wasted in braking. The stored energy is used to help propel the vehicle during the next vehicle acceleration, enabling the engine to operate more efficiently when it is needed.